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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of)
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Implementation of Sections 3(n))
and 332 of the Communications Act)
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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

PP Docket 93-252

JOINT COMMENTS

Advanced MobileComm Technologies, Inc. ("AMT") and Digital Spread Spectrum Technologies, Inc. ("DSST"), by their counsel and pursuant to Section 1.419 of the FCC's Rules, 47 C.F.R. §1.419, hereby submit their Joint Comments on the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.¹ By its NPRM the Commission has proposed Rules to implement the recent amendment to Section 332 of the Communications Act enacted by Title VI of the Omnibus Budget Reconciliation Act of 1993 (the "Budget Act").² To this end, consistent with the directives of the Budget Act, the Commission has proposed to regulate commercial mobile service providers as common carriers, to forbear from imposing certain Title II requirements on commercial mobile service providers and to regulate private mobile service providers as private carriers.

¹Implementation of Sections 3(n) and 332 of the Communications Act, FCC 93-454 (October 8, 1993).

²Pub. L. No. 103-66, Title VI, Section 6002(b), 107 Stat. 312, 392 (1993).

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Among the initial proponents of deployment of a multi-layered U.S. PCS infrastructure, AMT³ and DSST⁴ share the Commission's vision of PCS as a family of many emerging wireless services and technologies.⁵ AMT and DSST have advocated in General Docket 90-314 the adoption of PCS service rules that would accommodate the provision of a host of specialized PCS services and encourage the participation of small businesses, minority-owned enterprises and entrepreneurs in the provision of those services.⁶

On August 25, 1993, AMT and DSST submitted to the Commission a "Joint Petition For Further Rulemaking" (the "Joint Petition") requesting that the Commission undertake further rulemaking proceedings looking toward the adoption of Rules in General Docket 90-314 to designate a Specialized PCS service provider in each market to serve as a host carrier for the

³AMT is an affiliate of Advanced MobileComm, Inc. ("AMI"), one of the largest providers of Specialized Mobile Radio services in the nation. AMT's ultimate parent company, FMR Corp., is the nation's largest privately-owned investment management organization.

⁴DSST is a subsidiary of CYLINK Corporation ("CYLINK"), a recognized leader in the design, development and manufacture of Part 15 spread spectrum equipment. DSST was formed by CYLINK for the purpose of focusing CYLINK's considerable spread spectrum technology, marketing and regulatory expertise on the research, development and experimental deployment of PCS products and services.

⁵Amendment of the Commission's Rules to Establish New Personal Communications Services, FCC 93-451 (October 22, 1993) ("Broadband PCS Order").

⁶See AMT/DSST Joint Comments, Gen. Docket 90-314 (November 9, 1992); AMT/DSST Joint Reply Comments, Gen. Docket 90-314 (January 8, 1993).

provision of specialized PCS services by unlicensed PCS service providers. AMT and DSST submitted in support of the Joint Petition the August 19, 1993 Report of Hatfield Associates, Inc. ("HAI") titled "An Analysis of the Need for Specialized PCS Systems/Services." The HAI Report, a copy of which is appended to these Joint Comments, identified a demand for a host of emerging specialized PCS services characterized by (1) the need for interference protection, (2) the need for customization and specialization in the service offering and (3) a requirement for only limited system coverage. Included among the emerging specialized services identified by the HAI Report are health care, public and personal safety, educational and business applications.

I. REGULATORY CLASSIFICATION OF PCS

In its Broadband PCS Order, the FCC has recognized the need to accommodate the provision of specialized PCS applications of the kind identified by AMT and DSST in its PCS service rules.⁷ In its NPRM in this docket, the Commission also has recognized that the many emerging forms of PCS require the adoption of Rules pursuant to newly-amended Section 332 of the Communications Act that will enable PCS licensees to flexibly configure their systems. Thus, the FCC has stated that "[w]e

⁷In his Statement concurring with the Broadband PCS Order, Commissioner Duggan stated that the Commission's spectrum allocation "will permit proponents of widearea, broadband PCS to bid for larger spectrum blocks. But it will also allow the more specialized services that can be accommodated in smaller blocks of spectrum." Statement of Commissioner Ervin S. Duggan at 1.

have envisioned PCS as potentially providing a diverse array of mobile services, which could include applications that are not interconnected to the public switched network or are not offered to a substantial portion of the public."⁸ The Commission has recognized that "a licensee with a 20 MHz channel block could choose to devote 15 MHz to a wide-area interconnected service and 5 MHz to a high-speed data service for specialized customers."⁹ The Commission, accordingly, has proposed to allow PCS licensees to choose whether to provide commercial mobile or private mobile services, and requested comment on the practical implications of establishing a flexible regulatory framework for PCS licensees.

At the outset, AMT and DSST concur with the Commission's conclusion that PCS will evolve with many different services and technologies. AMT and DSST thus urge the Commission to find in this Docket that PCS licensees may provide both commercial mobile services and private mobile services within the meaning of the Budget Act. Many of the specialized PCS services identified in the HAI Report including, for example, localized health care and home care services and educational applications, indeed, may not require the provision of interconnected service. In contrast, other emerging specialized services, such as the wireless local access and public and personal safety applications identified in the HAI Report would require the provision of interconnected service. As a threshold matter, therefore, AMT

⁸NPRM at para. 45.

⁹Id. at para. 47.

and DSST urge the FCC not to limit PCS to commercial mobile service applications. In AMT's and DSST's view, such a limitation would unnecessarily encumber the provision of certain specialized PCS services and likely would reduce the availability of those services, thus restricting the diversity of available services and impeding competition in the PCS marketplace.¹⁰

AMT and DSST thus concur without reservation with the Commission's proposal to enable PCS licensees to select the services they will provide based on market demand rather than regulatory preconditions. In this respect, AMT and DSST favor permitting licensees the flexibility to provide both commercial and private mobile services on a co-primary basis under a single license. AMT and DSST, indeed, believe that the FCC's example of a licensee providing wide area PCS service on a portion of its licensed bandwidth and specialized services on another portion of its bandwidth will be a commonplace market occurrence.

From a practical standpoint, AMT and DSST believe that the Commission may best effectuate licensee choice by adopting only such minimal regulatory requirements necessary to ensure licensee compliance with the Communications Act and the Commission's Rules, and to provide the Commission the ability to

¹⁰Similarly, AMT and DSST do not believe that the Commission should mandate any level of threshold commercial mobile services to be provided by broadband and/or narrowband PCS licensees. Such a requirement would again interfere with the operation of market forces to ensure the optimal balance of commercial mobile and private mobile PCS services. In any event, any such limitation effectively would obligate the Commission to micro-manage the operations of the PCS licensees and would require the dedication of substantial administrative resources.

enforce its Rules with a minimal expenditure of its scarce resources. AMT and DSST thus support the FCC's proposal in Docket 93-253 to require applicants seeking to provide both commercial mobile and private mobile PCS services to file both FCC Forms 401 and 574, but urge the Commission to permit the licensees the flexibility to modify their initial choices during their license term to respond to market demand. Although initially the Commission may require the submission of either additional Forms 401 or 574, as appropriate, AMT and DSST believe that notifications of such changes, rather than applications for authority to modify, will best serve the public interest. AMT and DSST believe that this process, coupled with the Section 208 complaint process and the competitive pressures of the marketplace, will provide the FCC sufficient information to enable it to verify licensee compliance with Section 332, and to undertake enforcement actions against non-complying licensees.

II. REGULATORY CLASSIFICATION OF PRIVATE MOBILE SERVICES

In its NPRM, the FCC requests comment upon the appropriate interpretation of newly-amended Section 332(d)(3). In particular, the Commission notes several possible constructions of the definition of private mobile service as "any mobile service ... that is not a commercial mobile service or the functional equivalent of a commercial mobile service, as specified by regulation of the Commission." The reference to "functional equivalence" was added to the legislation in conference, and was not included in either the original Senate or

House proposed versions of Section 332(d)(3).

AMT and DSST believe that the Conference Report on the Budget Act makes clear that the "functional equivalence" proviso of Section 332(d)(3) confers on the FCC the discretion to regulate as a private mobile service any mobile service that may fall within the literal definition of "commercial mobile service" if that mobile service is not the "functional equivalent" of a commercial service.¹¹ This is consistent with AMT's and DSST's understanding of the intent of newly-amended Section 332 to level the regulatory playing field between similarly-situated services in view of the market maturation of certain private mobile services, particularly wide area, digital SMR systems.¹²

The second possible reading of newly-amended Section 332(d)(3) suggested by the Commission, i.e., that the "functional equivalent" provision is intended to expand the class of commercial mobile service providers, in contrast, is not consistent with AMT's and DSST's understanding of the legislative intent of the statute. Although the Conference Report does state that private mobile services "includes neither a commercial mobile service nor the functional equivalent of a commercial mobile service," AMT and DSST believe that this expansive

¹¹H.R. Rep. No. 102-213, 103rd Cong., 1st Sess. (1993) at 496.

¹²Relevant factors in the "functional equivalence" evaluation include the employment of frequency reuse to augment system capacity, the provision of wide area coverage and other elements.


construction of commercial mobile services would render meaningless the later statement that the Commission "may determine ... that a mobile service offered to the public and interconnected with the public switched network is not the functional equivalent of a commercial mobile service...."

For these reasons, AMT and DSST support adoption of the NPRM in this Docket consistent with the principles described herein.

Respectfully submitted,

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November 8, 1993

EXHIBIT 1

AN ANALYSIS OF THE NEED FOR SPECIALIZED PCS SYSTEMS/SERVICES

Prepared by

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August 19, 1993

I. INTRODUCTION

Hatfield Associates, Inc. (HAI) was asked by Advanced MobileComm, Inc. (AMI) and CYLINK to undertake a brief study of Specialized Personal Communications Services (Specialized PCS). In AMI/CYLINK's terminology, a Specialized PCS system encompasses a range of services characterized by (1) the need for interference protection, (2) the need for customization and specialization, and (3) a requirement for only limited coverage. That is, they serve customer requirements that cannot be effectively or efficiently met on systems designed to serve more ubiquitous, generic needs of the general public. An important aspect of these customized and specialized systems is that they can be technically configured for optimum performance in different applications, as opposed to generic systems designed to serve the more general needs of the public. For example, intrasystem interference protection, signal quality, signaling rates, and other performance-determining parameters of a Specialized PCS system can be optimized for differing applications. In the past, the Federal Communications Commission (FCC or the Commission) has recognized the need for such specialized services in, for example, the long haul communications and mobile radio area through spectrum allocations and associated rules for Specialized Common Carrier (SCC) systems and Specialized Mobile Radio (SMR) systems respectively.

The purpose of the study was two-fold: first, to identify potential short-range services whose requirements do not lend themselves to generic solutions and, two, to analyze whether or

not the services identified need the protection against interference that is offered by licensing. The study was carried out by conducting a systematic search of trade and professional journals (as well as a more limited search of the popular press) for articles and papers dealing with wireless systems and services. This report sets forth the results of that study.

The balance of the report is composed of two parts. Section II lists and describes services that meet the established criteria. The services are categorized into health care, public/personal safety, educational, business, and wireless access. Section III sets forth the conclusions of the study.

II. SPECIALIZED PCS SERVICES

In the balance of this section, services are identified that may not be efficiently or effectively served by generic systems intended to serve the more general needs of the public on a wide-coverage basis.

A. Health Care Applications

Presently, many hospitals and other healthcare facilities make use of devices operating on licensed UHF splinter frequencies or in unlicensed Part 15 spectrum. Applications include heart monitoring, remote telemetry, home care, online access to data bases, and bedside patient recordkeeping. Neither the use of licensed splinter frequencies, or the use of unlicensed Part 15 frequencies offers these organizations either long term or short term exclusivity in the use of the spectrum. Hence, they are subject to interference from other users of the spectrum. In some cases, the devices are used for biomedical

telemetry, including the telemetering of such vital signs as electrocardiogram signals. Such life threatening situations certainly require that the equipment operate with a very low probability of interference. That is, they require operation within licensed spectrum where the control of interference is surely mandatory.

Moreover, these healthcare applications are by their very nature specialized and they may not be effectively or efficiently served by more generic systems optimized to meet the more generalized needs of the public. For example, a public network may be designed for a certain level of blocking probability -- i.e., the probability that a user will be denied access to (or delayed in accessing) a system. While this probability or delay may be perfectly suitable for general use, it may be totally unsuitable for life threatening situations. Likewise, the probability of receiving errors or requiring message retransmissions may be unsuitable on a generic system. Furthermore, the range of operation of these systems may be quite short and, consequently, there may be no need for the service beyond the boundaries of a particular facility. In such a situation, construction of an entire network on a licensed basis to provide such a specialized, local service would clearly not be cost-effective or represent efficient use of the spectrum resource. In terms of spectrum efficiency, it would be better to reuse the same spectrum in different local areas for the differing requirements. In other words, on a licensed basis, the

spectrum used for a specialized healthcare system could be used just down the street from a specialized industrial system (e.g., in warehouse automation).

In short, healthcare applications clearly demonstrate that there is a need for specialized, licensed, systems because their requirement cannot be effectively and efficiently met by unlicensed, short range PCS systems nor by licensed, longer range generic systems designed to serve less specialized requirements. In any event, the customer will be best served by having a choice between less expensive, unlicensed systems/services and more expensive, wider-coverage systems of a more generic character.

B. Public/Personal Safety Applications

As in the case of healthcare, there are a myriad of potential Specialized PCS applications in the public/personal safety field. Applications include in-prison secure communications and surveillance systems, Intelligent Vehicle Highway Systems (IVHSs), home monitoring of prisoners on probation, various in-building and alarm systems and child location and proximity systems. Unlicensed Part 15 devices are currently being used to transmit intrusion, fire, and other alarms within buildings or building complexes. Other specific applications include a system that allows a prison guard to summon aid if he or she is threatened by inmates. This is accomplished by the guard activating a small radio device carried on his or her person. Similar systems are used to summon medical attention. Systems have also been proposed for automated toll

collection, and wireless systems could also be used by parents to keep track of their children.

Some of these applications are not critical in the sense that they are associated with life-or-death situations while others, like the devices used by guards to summon aid, are. Furthermore, they also share the common attribute that the application is very localized and specialized in nature so that they may not be well served by a generic system. This suggests, once again, the need for a licensed, short-range, Specialized PCS.

C. Educational Applications

Campus-wide networks can be configured in a number of ways using a combination of wireless systems. Such networks come in many forms: point-to-point links, point-to-multipoint or "star" links from a single hub side, peer-to-peer networks with no central hub, and, of course, various combinations of these. Most of the data in these networks are packetized; however, there are a number of voice and video systems that require dedicated circuit-switched full duplex circuits. Some of the less critical requirements for campus-wide networks can be met by unlicensed, short-range systems and some more critical requirements by licensed, wide-coverage systems (e.g., by a commercial mobile data system), but it is clear that there is also a need for a licensed, short-range, Specialized PCS.

D. Business Applications

There appears to be an almost unlimited number of short-range applications in business and industrial applications. These applications include (a) in-plant monitoring, telemetry, and communications, (b) process control, (c) robotics and automated warehouses, and (d) a host of miscellaneous applications ranging from wireless headsets used at fast-food restaurants to wireless microphones used at rock concerts. Specific applications include, for example, communications with lift truck operators in warehouses, communications among buildup/tear down crews working in places like sports pavilions or convention centers, and factory data networks (especially where production equipment is rearranged frequently to meet changing orders), wireless bridges used to provide quick and easy linking of wired or wireless LANs located in different buildings, and wireless "point-of-sale" networks used for such things as "cash" registers, bar code readers, and menu pads. As a more specific example of the latter, a clerk using a single handheld wireless device could scan in prices, take credit card payment, record the sale, and update inventory records.

These applications are so diverse that it is highly unlikely that a system designed to serve more generic needs will be effective and efficient. This is true even of systems like wireless LANs because they are typically designed to serve generic business needs and not the specialized needs for data

communications in a process control system at an oil refinery or chemical plant for example.

E. Wireless Access to the Public Switched Telecommunications Network

The use of cordless telephones has proliferated extremely rapidly in recent years. In the U.S. over 20 million cordless telephones were sold in 1992, an increase of 20 percent over the number sold in 1991. One spread spectrum cordless telephone for operation under Part 15 (unlicensed devices) is now on the market in the U.S. It is HAI's understanding that at least two other manufacturers will be marketing such cordless telephones by the end of 1993. Most of this rapidly growing market is in the higher end of the price range for this type of product where customers are demanding much better quality communications. Similarly, an increasing number of PBX and key telephone systems offer wireless alternatives to costly and inflexible inside wiring in business applications.

In less critical situations, unlicensed systems of this type may be perfectly adequate and, if the user has a requirement for public (i.e., Telepoint-type) access to the telephone network, commercial providers of public PCS services may be appropriate. But, in certain critical applications, the protection against interference that licensing provides may be needed, but there may be no need for public (i.e., "pay-phone-like") access to the public switched telecommunications network outside the immediate work environment. For example, through its consulting activities, HAI is aware of applications involving communications

during the emergency shut-down of chemical processing plants. Since the system is primarily used for in-plant communications and as a backup for wired systems under emergency conditions, there is a need for interference protection but no need for access to the public network beyond the immediate vicinity of the plant. In general, the customer would be better served by having a choice lying between unlicensed, short-range services and licensed, wide-coverage, public systems, and a Specialized PCS system would provide exactly that choice.

III. CONCLUSIONS

Based upon a review of the requirements for existing and prospective PCS systems and services, it is apparent that there is a need for the Specialized PCS systems envisioned by AMI/CYLINK. On the one hand, unlicensed systems, while entirely appropriate in many situations, do not provide the necessary interference protection in more critical applications. On the other hand, licensed, longer range, more ubiquitous systems necessarily designed for use by the general public may not meet more specialized requirements. Therefore, from a public policy perspective, end users would be better served by having a third alternative -- a licensed (interference-protected) system capable of meeting the unique customer needs of a primarily local nature. The AMI/CYLINK proposal for a Specialized PCS system would provide exactly that alternative.